

**TRANSLATION**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>FU-0412-PCT</b>	<b>FOR FURTHER ACTION</b>	See Form PCT/IPEA/416
International application No. <b>PCT/JP2004/010911</b>	International filing date ( <i>day/month/year</i> ) <b>30.07.2004</b>	Priority date ( <i>day/month/year</i> )
International Patent Classification (IPC) or national classification and IPC <b>G09G3/28 (2006.01) i, G09G3/20 (2006.01) i, G09G5/00 (2006.01) i, G09G5/391 (2006.01) i</b>		
Applicant <b>HITACHI, LTD.</b>		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> ( <i>sent to the applicant and to the International Bureau</i> ) a total of _____ sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> ( <i>sent to the International Bureau only</i> ) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/010911

Box No. I

Basis of the report

1. With regard to the
- language**
- , this report is based on:



the international application in the language in which it was filed



the translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of:



international search (Rule 12.3(a) and 23.1(b))



publication of the international application (Rule 12.4(a))



international preliminary examination (Rule 55.2(a) and/or 55.3(a))

2. With regard to the
- elements**
- of the international application, this report is based on (
- replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*
- ):



the international application as originally filed/furnished



the description:

pages \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_



the claims:

nos. \_\_\_\_\_ as originally filed/furnished

nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19

nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_



the drawings:

sheets \_\_\_\_\_ as originally filed/furnished

sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_



a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

- 3.
- ☐
- The amendments have resulted in the cancellation of:



the description, pages \_\_\_\_\_



the claims, nos. \_\_\_\_\_



the drawings, sheets/figs \_\_\_\_\_

the sequence listing (*specify*): \_\_\_\_\_any table(s) related to sequence listing (*specify*): \_\_\_\_\_

- 4.
- ☐
- This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).



the description, pages \_\_\_\_\_



the claims, nos. \_\_\_\_\_



the drawings, sheets/figs \_\_\_\_\_

the sequence listing (*specify*): \_\_\_\_\_any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/010911

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
<b>1. Statement</b>			
Novelty (N)	Claims	<u>1-6</u>	YES
	Claims	<u></u>	NO
Inventive step (IS)	Claims	<u>5</u>	YES
	Claims	<u>1-4, 6</u>	NO
Industrial applicability (IA)	Claims	<u>1-6</u>	YES
	Claims	<u></u>	NO
<b>2. Citations and explanations (Rule 70.7)</b>			
<p>Document 1: JP 3527235 B1 (Mitsubishi Electric Corporation), 27 February 2004, paragraphs [0034] and [0035]; [fig. 10], (Family: none)</p> <p>Document 2: Michiel A. Klompenhouwer, "Subpixel Image Scaling for Color Matrix Displays", Society For Information Display 2002 International Symposium Digest of Technical Papers, Vol. XXX III, No. 1, pages 176 to 179</p> <p>Document 3: JP 10-133618 A (Sony Corporation), 22 May 1998, paragraphs [0016] to [0022]; [fig. 12] and [fig. 13] &amp; US 6088062 A</p> <p>Claims 1, 3 and 6</p> <p>Documents 1 and 2</p> <p>Document 1 sets forth a feature pertaining to pixel interpolation, wherein in displaying on a display screen an image based on image data having a higher resolution than the resolution determined from the display pixel pitch, an array of image data points is overlaid in an offset position in such a manner that each data point does not overlap with the center of each pixel of the display device, and data corresponding to each pixel is calculated by a weighting calculation according to the</p>			

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
	<p>amount of offset. It would not be particularly difficult for a person skilled in the art to apply said feature to a display device such as that disclosed in document 2, wherein display pixels are comprised of a plurality of sub-pixels arranged in a circular array direction. Therefore the inventions set forth in claims 1, 3 and 6 do not involve an inventive step in the light of documents 1 and 2.</p> <p>Claim 2</p> <p>Documents 1 to 3</p> <p>As disclosed in documents 1 and 3, there are many different conceivable scenarios for predetermined area which is taken into consideration when performing pixel interpolation. That being the case, determining the area to which a predetermined area should be set is merely a design matter which a person skilled in the art could determine as necessary when implementing an invention. Therefore the invention set forth in claim 2 does not involve an inventive step.</p> <p>Claim 4</p> <p>Documents 1 to 3</p> <p>Document 3 sets forth a feature wherein the data pixel pitch is 2/3 of the display image pitch. Therefore the invention set forth in claim 4 does not involve an inventive step.</p> <p>Claim 5</p> <p>The feature of the invention set forth in claim 5, that is to say, wherein sub-pixel data which corresponds to sub-pixels is generated from virtual data which</p>

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**Box No. V****Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

corresponds to virtual pixels, is neither disclosed nor suggested in any of the documents cited in the international search report, or in documents 1 or 3 which were newly cited in the written opinion.